

various kinds of shelter screens are described. The coniferous and deciduous nurseries are for obvious reasons treated separately.

This batch of literature gives some idea of the value of the work which the United States Bureau of Forestry is doing, and, on the whole, its value to the country cannot be over-estimated.

PROGRESSIVE BUDDHISM.¹

THE handsomely got-up and well-printed review, *Buddhism*, is an interesting sign of the times. The Buddhist community is apparently realising that it is advisable, so far as possible, to bring itself into line with modern developments, and to the monthly periodicals appearing in Ceylon, Japan, and (strange to say) San Francisco, has now added this quarterly journal appearing in Burma.

The present venture is edited by Ananda Maitreya, the name, in religion, of a Scotchman who has entered the Buddhist Order; and he has secured the cooperation for this number not only of Indian, Burmese, and Sinhalese, but also of American and English writers.

In the editor's article on "The New Civilisation," he maintains that the new civilisation which is beginning, in a way that no ancient civilisation did, to permeate mankind should be heartily welcomed by Buddhists as being based on that conception of the inviolable sequence of cause and effect, of the reign of law, which was, indeed, the main tenet in the teaching of the Buddha. And he ventures on a glowing prophesy of what the future of humanity will be when this conception of law, claimed by him as a special mark of Buddhist teaching, shall have worked out its effect in the daily lives of men by an increased deference to knowledge, and to the men of knowledge, by the growth of a spirit of wide toleration and humanity. The courageous optimism of this article is in striking contrast with ideas usually held about Buddhist teaching; but it is interesting to see how thoroughly the party represented by this newest Buddhist journal is in sympathy with the teachings and the spirit of science.

Dr. Paul Carus, of Chicago, follows with an article on "The Philosophy of Buddhism," in which he claims that the latest, as well as the earliest, Buddhism, rests upon the belief in a universal reign of law, and on the idea that nothing is but everything becomes. Mr. Chandra Das has an interesting historical paper on the foundation of Lhasa, and Mr. Tau Seng Ko another on the introduction of Buddhism into Burma, each of them writing with special expert knowledge of his subject. There are shorter articles by other writers, paragraphs of notes and news, and some scholarly reviews. The journal would be useful to those who desire to follow the tendencies in the forward movement among the Buddhist communities; whether it is entitled to speak for all Buddhists is another matter.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Mr. A. W. Hill, of King's College, has been appointed University lecturer in botany until Michaelmas, 1909.

The degree of Sc.D. *honoris causa* is to be conferred on Prof. E. B. Tylor, of Oxford, at a congregation held to-day. At the same congregation Mr. J. W. Willis, director of the Botanical Gardens, Peradeniya, Ceylon, will proceed by proxy to the same degree.

Mr. C. Shearer, advanced student of Trinity College, has been re-nominated to the university table at the zoological station at Naples.

The Board of Geographical Studies has published the following schedule for the special examination in geography and for part i. of the examination for the diploma in geography:—(1) *Physical Geography*.—Form and motions of the earth. Elementary climatology and oceanography. Typical forms of land configuration, their distribution and modes of formation. (2) *Historical and Political Geography*.—The historical development and political partition of the

different regions of the world, with a consideration of the influence of their physical features. A more detailed knowledge of the geography of a selected region (for 1905 and 1906, *Europe*). (3) *Economic and Commercial Geography*.—The economic growth of the different regions of the world, and the main lines of commerce and communication by land and sea in past and present times. A more detailed knowledge of a selected region (for 1905 and 1906, *Europe*). (4) *Cartography*.—The construction and use of maps. A general knowledge of the methods of exploratory surveying: plane tabling, latitudes and azimuths by the sun, latitude and azimuth traverses, route traverses and compass sketching. Heights by barometer and boiling-point thermometer. The candidate will be examined orally and practically on maps and on the ordinary surveying instruments. Any candidate who can produce a sketch made by himself of a route traversed by compass, and checked by observations for latitude and azimuth with the necessary computations, will be examined thereon and will receive special credit for good work. (5) *History of Geographical Discovery*.—The outlines of the history of geographical discovery, with special questions on a selected region or period (for 1905 and 1906, *The Fifteenth Century*). (6) *Elements of Ethnology*.—The principal races of mankind, their migrations and present distribution.

LONDON.—At the annual meeting of University College on February 22, the following resolution, moved by Lord Reay, on behalf of the council, was unanimously adopted:—That the Bill now submitted, entitled "A Bill for Transferring University College, London, to the University of London and for other matters connected therewith and for Amending the University of London Act, 1898," be and the same is hereby approved subject to such additions, alterations, and variations as Parliament may think fit to make therein.

DR. MICHELE CANTONE, of Pavia, is to succeed Prof. E. Villari as professor of physics and director of the physical laboratory at Naples. At Göttingen, Prof. F. Dolezalek has been appointed head of the department of physical and electrical chemistry. Dr. H. Kneser has been appointed professor of mathematics at Breslau. Dr. Ludwig Claisen late professor of chemistry at Kiel, has been appointed honorary professor at Berlin, and Dr. Karl Stöckl professor of mathematics and physics at Passau.

IN his last report President Eliot recommends, says *Science*, the collection of 500,000l. as an endowment for the college of Harvard University, and it is said that the alumni are making efforts to collect this sum before the next commencement day. The class of 1880 expects to contribute 20,000l. on the occasion of its twenty-fifth anniversary. From the same source we learn that Mr. Andrew Carnegie has given to the Rensselaer Polytechnic Institute at Troy 25,000l. toward rebuilding the main building which was burned last June. He has also given 20,000l. to Tufts College for the erection of a library building.

THE committee appointed by the Prince of Wales, as president of King Edward's Hospital Fund, to inquire into the financial relations between the hospitals and medical schools has now issued its report. The committee has formed, it is to be noted with satisfaction, the opinion that a broad line of distinction ought to be drawn between the preliminary and intermediate studies of a medical student on one hand, and the final studies on the other; and that whilst the final studies can be pursued with advantage only within the walls of a hospital, the earlier scientific studies have no real relation with a hospital, and are pursued more properly in an institution of university character. The committee expresses satisfaction that the statutes of the University of London direct the Senate to "use its best endeavours whenever practicable to secure such common courses of instruction for internal medical students in the preliminary and intermediate portion of their studies under appointed or recognised teachers at one or more centres." To do this effectively will mean a great expenditure, and the Senate of the university is appealing for funds to assist it in carrying out the work. The conclusions arrived at by the committee appointed by the Prince of Wales should prove of advantage both to the hospitals and to the

¹ "Buddhism." An Illustrated Quarterly Review. Vol. i., No. 4. Pp. xxii+170. (Rangoon: Hawthrawaddy Press, 1904.)

university. The hospital should be a school only in the sense of being a school of applied science where general principles of science are applied to a specific technical purpose. But if the medical student is to be no longer provided with instruction in scientific fundamentals at the hospitals, there must be forthcoming—if London is to remain a great medical and surgical centre—funds enough to provide other institutions where this teaching may be given. University College and King's College have long done work of this kind, but the accommodation which they are able to provide is quite inadequate for the instruction of the students of all the hospitals, and other colleges are required where general education of a university standard may be obtained.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, January 26.—"On the Comparison of the Platinum Scale of Temperature with the Normal Scale at Temperatures between 444° and -190° C., with Notes on Constant Temperatures below the Melting-point of Ice." By Prof. Morris W. **Travers**, F.R.S., and A. G. C. **Gwyer**.

The authors conclude that, as might be expected, it is possible to apply the parabolic formula of Callendar and Griffiths to the re-calculation of the differences between the platinum scale of temperature and the scale of the gas thermometer, though the range through which it is applicable, and value of the constant δ , precludes the possibility of employing it except for interpolation. A standard scale of temperature, based on Callendar's three fixed points, using standard wire, and taking 1.5 for the value of δ , would lead to absurd results at low temperatures; and the converse may be said of the authors' own observations. The results referred to in this paper may be summed up as follows:—

Nature of gas thermometer.	Observer.	δ
Constant pressure air (0° to 444°) ...	Callendar and Griffiths	1.50
Constant volume nitrogen (-23° to 445°)	Chappuis and Harker	1.54
Constant volume nitrogen standardised by constant pressure air at 444° (500° to 1000°) ...	Harker ...	1.51-1.49
Constant volume hydrogen (-190° to 34°) ...	Travers and Gwyer ...	1.90

February 2.—"On the 'Blaze-currents' of the Gall Bladder of the Frog." By Alice M. **Waller**. Communicated by Dr. Augustus D. **Waller**, F.R.S. (From the Physiological Research Laboratory of the University of London.)

This investigation was made in continuation of Dr. Waller's work on blaze-currents. A blaze-current, as defined by Dr. Waller in previous communications to the Royal Society and in his lectures on the signs of life, is a current of action, an electric current aroused in living tissues by stimulus; the term "blaze" has reference to the vitality of the tissue, to a chemical exchange going on within it; a muscle at rest is smouldering, a muscle in action is blazing. Dr. Waller's apparatus and method of work were employed; the apparatus consists essentially of a keyboard containing four keys, opening respectively to an induction coil, a compensator, the object to be studied, and a galvanometer or electrometer. Any accidental current in the object is compensated so that the galvanometer key can be opened without altering the zero, then the object is stimulated by a single break induction shock, the galvanometer key is opened, and the after-effect observed.

As seen in previous work by this method, the direction of blaze-current varies in different living objects or tissues, e.g. in a plant the blaze-current is either post-anodic or homodrome or it runs from younger to older tissue, in the crystalline lens from anterior to posterior surface, in skin from within outwards. The tissues and organs of the frog were systematically examined, and it was found that the liver gave responses either antidrome or from surface to hilum, and the gall bladder gave surprisingly large electrical variations, as much as 1/10 volt, always antidrome, in a way that one is accustomed to regard as due to polarisation currents in non-living matter. These polarisation currents were proved to be physiological by their abolition on submitting the organ to strong chloroform, boiling or electrocution by tetanisation. The effect is local, it can be destroyed by tetanus at

two spots, and was found to persist at other parts of the round bladder.

Employing Waller's A. B. C. method, in which a three-way switch is employed so that the anode and kathode of the exciting current can be separately interrogated, it is found that the blaze at each pole is post-kathodic or antidrome. The blaze lasts about two minutes; it is often diphasic or triphasic; a single break shock with coil at 5000—(Berne scale) gave +0.0125 volt, then -0.0110, then +0.0010.

The bladder was washed out and filled with salt solution, and the same effect obtained; a piece was snipped off and electrodes applied to mucous and serous surfaces, and still antidrome blaze obtained, though there was a tendency to exhibit the usual mucous to serous blaze.

The simplicity of structure of the gall bladder—a sphere having a single row of columnar epithelium on the mucous interior surrounded by layers of smooth muscle fibre cells—may account for the large and definite blaze-currents obtained, but why the cells should exhibit negative polarisation, antidrome rather than homodrome or positive polarisation, is not yet apparent.

Entomological Society, February 1.—Mr. F. Merrifield, president, in the chair.—**Exhibitions**:—Specimens of *Oligota granaria* found in a granary at Holborn, the only other localities reported hitherto being Shoe Lane, London, and Scarborough: H. St. J. **Donisthorpe**.—An Erycinid butterfly *Mesosemia eumene* pinned in its natural position of rest to show its resemblance to the head of a small mammal, such as a mouse: W. J. **Kaye**.—A variety of the female of *Lycaena melanops* named by him var. *wheeleri*: Dr. T. A. **Chapman**. As a mere aberration it was interesting, but it was of value as showing that the position in the genus for long accorded to the species, whether by accident or design, close to the Arion-Euphemus group, was correct. The considerable extension of the blue in this specimen showed up certain black spots on the upper surface of both upper and lower wings, strictly similar to these characteristics of the Arion-Euphemus group.—A living ♀ *H. defoliaria*, taken as late as February 1, at rest on north side of oak-tree, and another ♀ taken January 28 in the same wood at Bexley. A ♂ *Notodonta ziczac* × ♀ *N. dromedarius*, with two hybrids, the colour of the hybrids being that of *dromedarius*, while the markings were those of *ziczac*: F. **Enock**.—A living specimen of *Acridium acgyptium*, L., found in a cauliflower in Bloomsbury, and probably imported from Italy: O. E. **Janson**.—Two specimens of *Malachius barnvillei*, Puton, captured by Mr. Thouless at Hunstanton, Norfolk, in June, 1899, a recent addition to the British list: G. C. **Champion**.—♂ and ♀ specimens of *Machimus rusticus*, Mgr., a rare Asilid, taken in cop. at Freshwater, Isle of Wight, on August 13, 1903: H. W. **Andrews**.—A ♀ example of *Panorpa cognata* taken at Byfleet Canal on August 23, 1904: W. J. **Lucas**. The insect occurs at Folkestone, and is said to be found in the New Forest. It is a little difficult at times to identify the ♀ alone, but Mr. K. J. Morton also had identified the specimen exhibited as *P. cognata*. For comparison he also exhibited ♀ of *P. communis* and *P. germanica*.—**Papers**:—A revision of the genus *Criocephalus*, with notes on the habits of *Asemum striatum* and *Criocephalus ferus*: Dr. D. **Sharp**, F.R.S., and T. G. **Smith**.—Another entomological excursion to Spain (with descriptions of two new species of Hemiptera by Dr. O. M. **Reuter**): Dr. T. A. **Chapman** and G. C. **Champion**.—On the matriforous habit of the species of *Heterogynis*, Ramb., and on the pupal suspension of Thais: Dr. T. A. **Chapman**.—Notes on New Zealand Lepidoptera: E. **Meyrick**, F.R.S.

Zoological Society, February 7.—Mr. Howard Saunders, vice-president, in the chair.—A second collection of fishes made by Mr. S. L. Hinde in the Kenya District of East Africa: G. A. **Boulenger**, F.R.S. Examples of five species were contained in the collection, three of which were new to science.—On some points in the anatomy of a theriodont reptile: Dr. R. **Broom**.—Field-notes on the mammals of Southern Cameroons and the Benito: G. L. **Bates**.—A collection of Heterocera from the Fiji Islands: G. T. **Bethune-Baker**. Of the species enumerated eleven were new to science.—A contribution to the knowledge of